ABSTRACT OF THE DISCLOSURE

A combined gasoline and hydrogen fueling system for a gasoline-powered internal combustion engine, including, preferably, a rapid-start catalytic reformer for producing reformate gas containing hydrogen from gasoline. The reformate from the reformer is swept by air into the intake manifold of the cold engine where it is mixed with intake air and then drawn into the cylinders and ignited conventionally to start the engine. A computer-based reformer control system optimizes the amount of reformate formed and the resulting reformate/air mixture. The reformer control system interfaces or is integral with a computer-based gasoline and air supply system for the engine, the two systems cooperating to optimize a mixture of gasoline and reformate in the intake manifold at all times during warming of the engine and its exhaust catalyst to steady-state operating temperature. Preferably, flow of reformate is terminated thereafter.